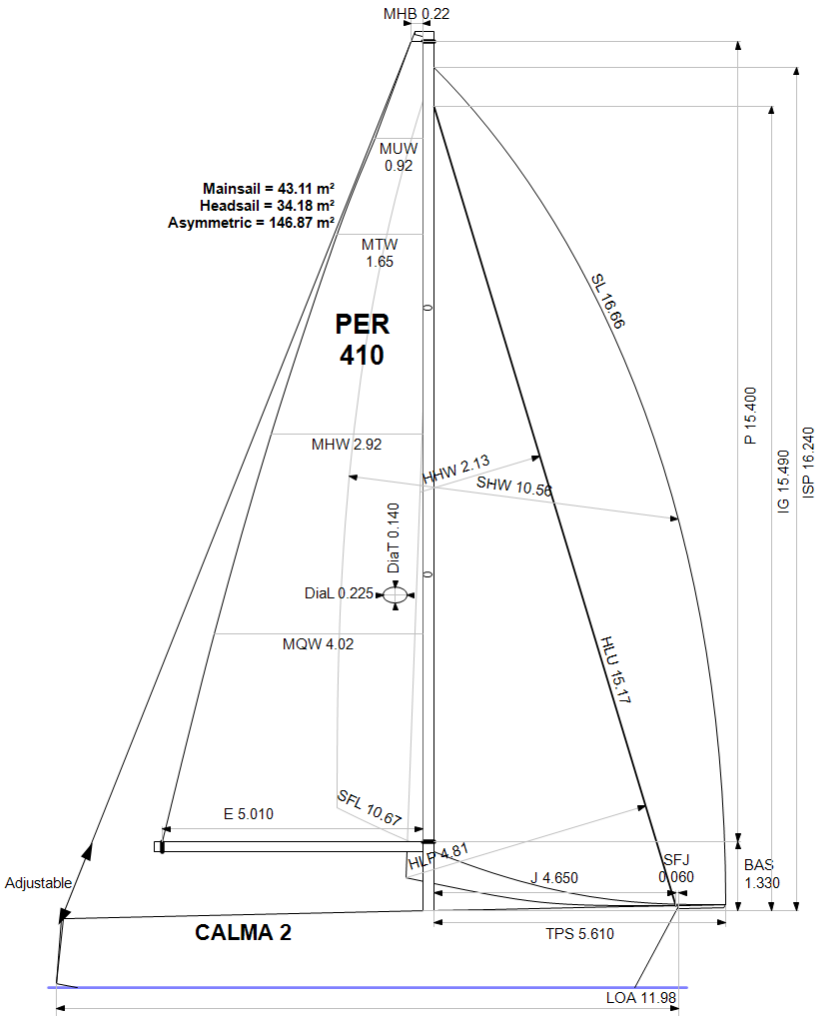
Club Certificate 2023

Boat
CALMA 2
PER410

Asociacion de Vela Oceanica
del Pero - AVOP
Roberto Peschiera - Rating Officer
peschiera56@gmail.com

APH: **550.4** CDL: **9.591**

GPH: **623.0** CertNo:



BOAT

Class	**SUN ODYSSEY 410 Pe**
Designer	**Lombard MARC**
Builder	**Jeanneau**
Age date	**01/2020**
Series date	**01/2019**
Offset file	**SO-410.off**
Data file	**PER410**

HULL

Length Overall	**11.985 m**
Maximum Beam	**3.990 m**
Draft	**2.159 m**
Displacement	**8,700 kg**
DLR	**6.9117**
IMS Division	**Cruiser/Racer**
Dynamic Allowance	**0.270%**
Age Allowance	**0.130%**

PROPELLER

Installation	**Shaft exposed**
Type	**Folding 3 blades**
Diameter	**0.440m**

CREW

Maximum weight	**520 kg**
Minimum weight	**390 kg** ** when applied*
Non Manual Power	**No**
Crew Arm Extension	

SAIL AREAS (m²)

	Measured	Rated
Mainsail	**43.11**	**43.58**
Headsail Luffed	**34.18**	**34.18**
Headsail Flying		
Symmetric		
Asymmetric	**146.87**	**146.87**

(1 asymmetric(s) with SHW/SFL < 85%)

STORM SAIL AREAS (m²)

Trysail	**13.51**
Storm Jib	**12.16**
Heavy Weather Jib	**32.82**

SAIL LIMITS

Headsails	**5**
Spinnakers	**4**

STABILITY

Righting Moment	**N/A**
Stability Index	**N/A**

The owner and any other person in charge is responsible that boat is complying with her certificate in accordance with RRS 78.1 and ORC Rule 304.

Rated boat velocities in knots

Wind Velocity	6 kt	8 kt	10 kt	12 kt	14 kt	16 kt	20 kt
Beat Angles	45.1°	42.9°	41.4°	40.5°	40.0°	39.9°	40.0°
Beat VMG	3.12	3.87	4.44	4.88	5.14	5.25	5.28
52°	4.84	5.87	6.60	7.13	7.46	7.64	7.73
60°	5.14	6.16	6.88	7.37	7.70	7.89	8.02
75°	5.53	6.62	7.34	7.77	7.99	8.15	8.48
90°	5.76	6.87	7.58	8.02	8.35	8.61	8.89
110°	5.82	7.03	7.78	8.25	8.65	8.92	9.46
120°	5.68	6.91	7.71	8.22	8.68	9.13	9.83
135°	5.05	6.37	7.33	7.93	8.40	8.87	9.84
150°	4.28	5.45	6.49	7.26	7.73	8.07	8.71
Run VMG	3.70	4.72	5.62	6.29	6.69	7.04	7.93
Gybe Angles	144.2°	146.9°	146.9°	148.7°	149.2°	169.4°	175.4°

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Time Allowances in secs/NM							
Wind Velocity	6 kt	8 kt	10 kt	12 kt	14 kt	16 kt	20 kt
Beat VMG	1155.4	930.2	810.5	738.0	700.1	685.9	682.1
52°	744.3	613.5	545.3	505.1	482.4	471.4	465.8
60°	699.9	584.1	523.5	488.4	467.8	456.3	448.9
75°	650.9	543.7	490.5	463.5	450.5	441.8	424.5
90°	624.9	524.3	475.0	449.0	431.2	417.9	405.0
110°	618.2	511.9	462.7	436.4	416.4	403.7	380.4
120°	633.6	521.0	467.1	437.9	414.7	394.2	366.3
135°	713.1	565.1	491.4	453.8	428.6	406.0	365.7
150°	842.1	660.4	554.5	495.7	465.7	446.1	413.1
Run VMG	972.3	762.5	640.3	572.3	537.8	511.2	453.8
Selected Courses							
Windward / Leeward	1063.9	846.4	725.4	655.2	619.0	598.6	568.0
All purpose	810.0	655.0	572.9	526.7	500.7	484.5	463.7

Single Number Scoring Options		
Course	Time On Distance	Time On Time
Windward / Leeward	691.5	0.8677
All purpose	550.4	1.0902

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Data in **meters/kilograms (Metric)**

HULL AND APPENDAGES (Lightship Trim)

Class	**SUN ODYSSEY 410 Pe**	LOA	**11.985**	VCGD	**0.340**
Measurement	**24/11/2022**	Max. Beam	**3.990**	VCGM	**0.324**
HIN		Draft	**2.159**	RM Rated (kg·m)	**261.9**
Plan review		Displacement	**8,700**	Limit of positive stability(°)	**N/A**
Hull construction	**Solid**	Wetted area	**35.69**	Stability Index	**N/A**
Carbon Rudder	**No**	IMS L	**10.992**		
Light stanchions	**No**	LSM0	**10.796**		
Trim tab	**No**	Acc. length	**11.985**		
		Sink (kg/mm)	**28.51**		

PROPELLER

Propeller Type	**Folding 3 blades**								
Installation	**Shaft exposed**	PRD	**0.440**	PSD	**0.030**	PSA	**24.5°**	ST1	**0.205**	ST4	**0.060**
Twin screw	**No**	PBW	**0.110**	PHD	**0.060**	ESL	**0.850**	ST2	**0.108**	ST5	**0.210**
Hydro generator	**No**	PIPA	**0.0068**	PHL	**0.135**			ST3	**0.100**		

RIG

Forestay tension	**Aft**	P	**15.400**	E	**5.010**
Inner stay	**None Fitted**	IG	**15.490**	J	**4.650**
Carbon mast	**No**	ISP	**16.240**	BAS	**1.330**
Headsail furler	**Yes**	MDT1	**0.140**	FSD	**0.045**
Mainsail furler	**No**	MDL1	**0.225**	SFJ	**0.060**
Articulated bowsprit	**No**	MDT2	**0.140**	SPL	**0.000**
Non-circular rigging	**No**	MDL2	**0.225**	WPL	
Fiber rigging	**No**	TL		TPS	**5.610**
Runners/Checkstays	**0**	MW	**0.225**	BD	**0.200**
Spreaders	**2**	GO	**0.255**	MWT	**0.00**
Rotating mast	**No**			MCG	**0.000**

FLOTATION AND STABILITY

Calculation method	**Poles inclining**	SFFP	**0.525**	SAFP	**11.848**	W1	**145.5**	PD1	**563.7**	WD	**12.520**
Flotation Date	**07/07/2022**	FFM		FAM		W2	**145.5**	PD2	**556.3**	PLM	**9000.00**
Measurer		FF	**1.568**	FA	**1.213**	W3	**145.5**	PD3	**533.5**	GSA	**1.0**
Comment		LCFcl	**6.889**	LCFsh	**7.243**	W4	**145.5**	PD4	**539.8**	RSA	**1.0**
		SG	**1.0253**	HBI	**1.482**					RM	**261.8**

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MAINSAIL

Id	*MHB*	*MUW*	*MTW*	*MHW*	*MQW*	*Area*	*Meas.Date*	*Comment*
M1	0.22	0.92	1.65	2.92	4.02	43.11	10/08/2022	USADA

HEADSAIL

Id	*HHB*	*HUW*	*HTW*	*HHW*	*HQW*	*HLP*	*HLU*	*Btn*	*Flying FT*	*Area*	*Meas.Date*	*Comment*
G1	0.08	0.52	1.04	2.13	3.35	4.81	15.17	Yes	No	34.18	10/08/2022	USADA

ASYMMETRIC SPINNAKER

Id	*SLU*	*SLE*	*SL*	*SHW*	*SFL*	*Ratio*	*Area*	*Meas.Date*	*Comment*
A2	18.26	15.05	16.66	10.56	10.67	99%	146.87		
A1	17.87	15.65	16.76	9.76	10.50	93%	138.38	10/08/2022	VERDE
A0	16.02	14.16	15.09	5.42	7.07	77%	72.31	10/08/2022	GRIS CLARO